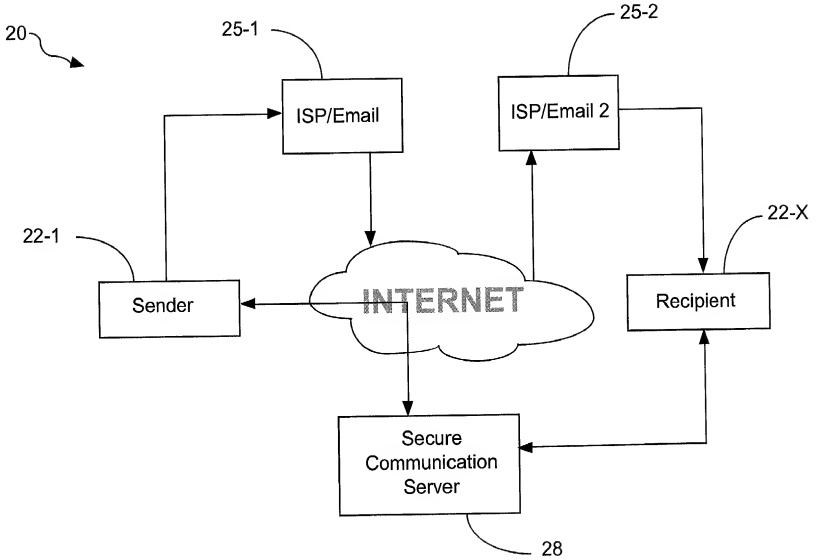
20
25-1
25-2
ISP/Email
ISP/Email 2
22-1
22-X
Sender
INTERNET
Recipient
Secure
Communication
Server
28

FIGURE 1

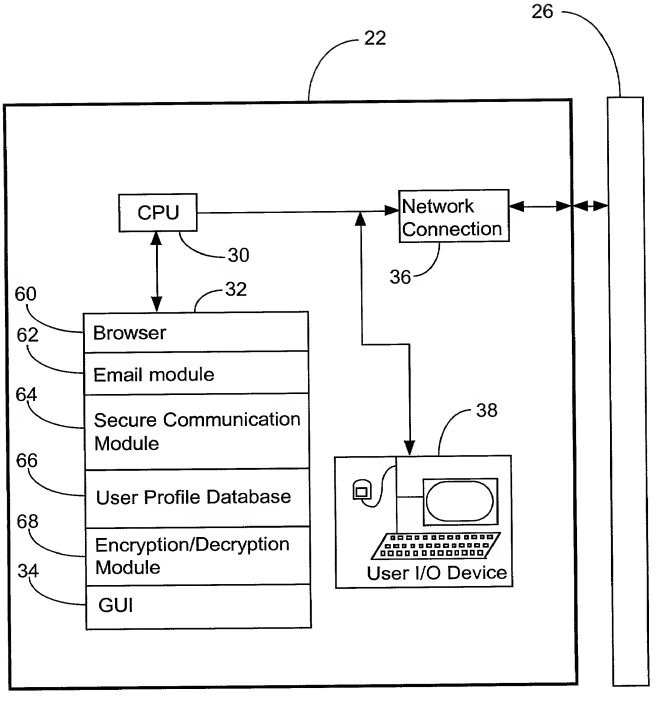
26
22
CPU
Network Connection
30
36
32
60
62
64
66
68
34
Browser
Email module
Secure Communication Module
User Profile Database
Encryption/Decryption Module
GUI
38
User I/O Device

FIGURE 2

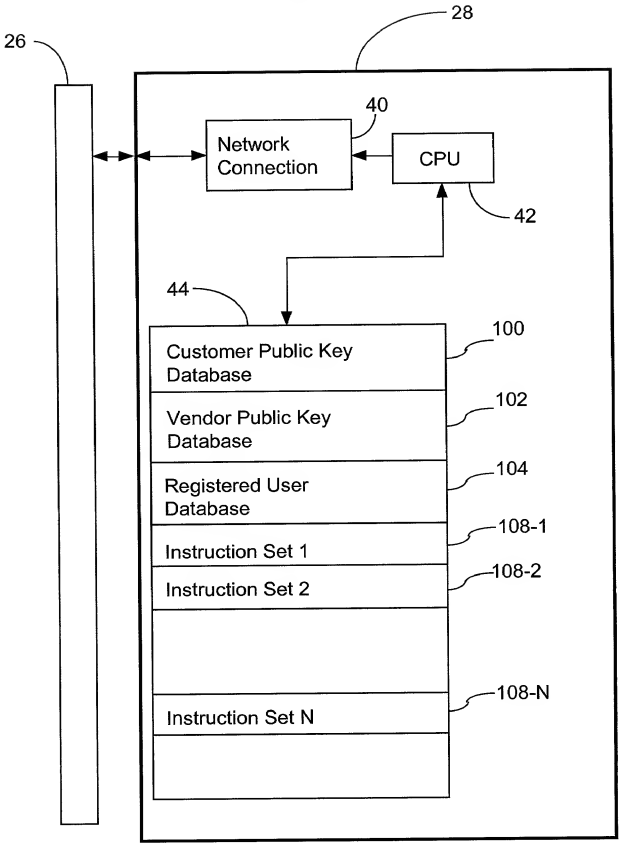
26
28
40
Network Connection
CPU
42
44
Customer Public Key Database
100
Vendor Public Key Database
102
Registered User Database
104
Instruction Set 1
108-1
Instruction Set 2
108-2
Instruction Set N
108-N

FIGURE 3

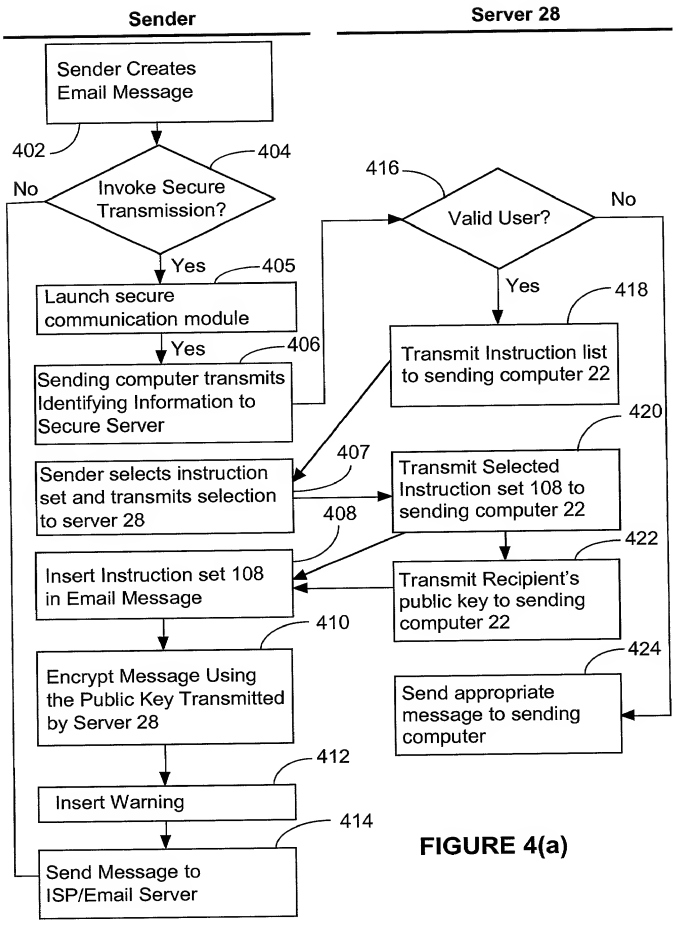
Sender
Server 28
Sender Creates Email Message
402
Invoke Secure Transmission?
404
No
Yes
Launch secure communication module
405
Yes
Sending computer transmits Identifying Information to Secure Server
406
Sender selects instruction set and transmits selection to server 28
407
Insert Instruction set 108 in Email Message
408
Encrypt Message Using the Public Key Transmitted by Server 28
410
Insert Warning
412
Send Message to ISP/Email Server
414
Valid User?
416
No
Yes
Transmit Instruction list to sending computer 22
418
Transmit Selected Instruction set 108 to sending computer 22
420
Transmit Recipient's public key to sending computer 22
422
Send appropriate message to sending computer
424

FIGURE 4(a)

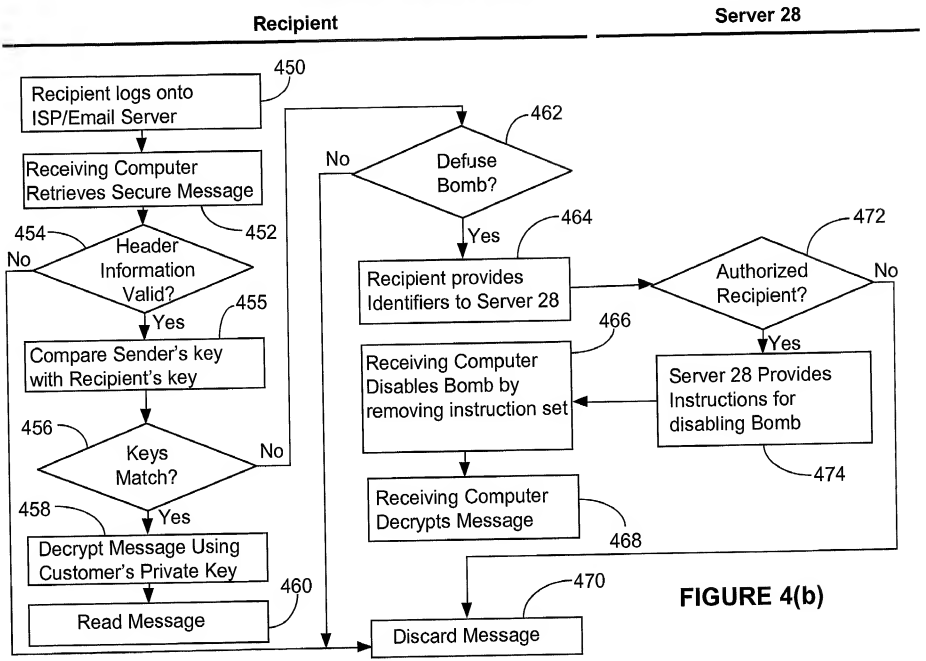
Recipient
Server 28
Recipient logs onto ISP/Email Server
450
Receiving Computer Retrieves Secure Message
452
Header Information Valid?
454
No
Yes
Compare Sender's key with Recipient's key
455
Keys Match?
456
No
Yes
Decrypt Message Using Customer's Private Key
458
Read Message
460
Defuse Bomb?
462
No
Yes
Recipient provides Identifiers to Server 28
464
Receiving Computer Disables Bomb by removing instruction set
466
Receiving Computer Decrypts Message
468
Discard Message
470
Authorized Recipient?
472
No
Yes
Server 28 Provides Instructions for disabling Bomb
474

FIGURE 4(b)

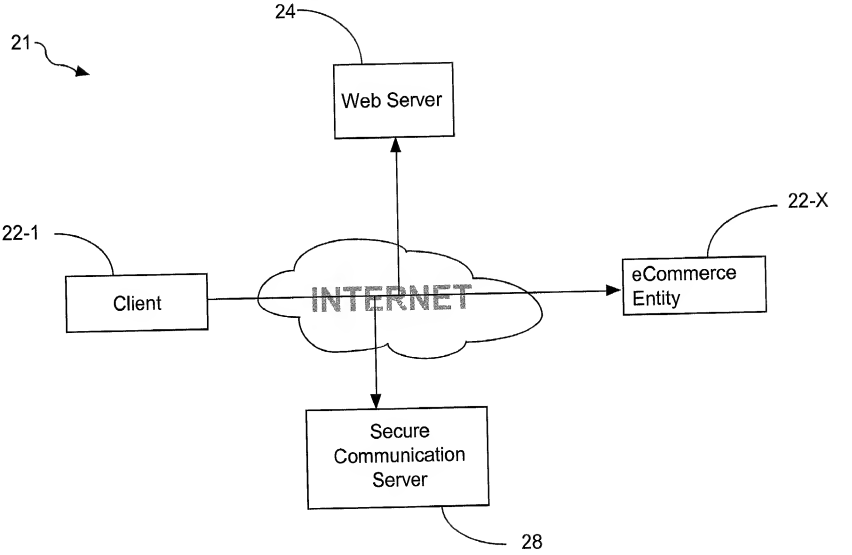
21
24
Web Server
22-1
22-X
Client
INTERNET
eCommerce
Entity
Secure
Communication
Server
28

FIGURE 5

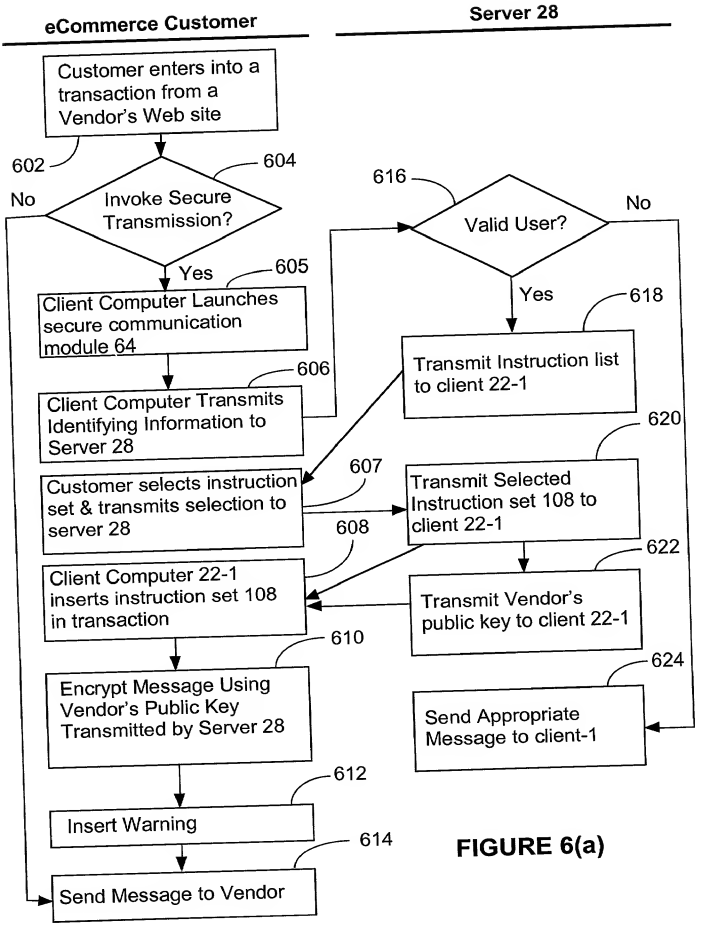
eCommerce Customer
Server 28
Customer enters into a transaction from a Vendor's Web site
602
Invoke Secure Transmission?
604
No
Yes
Client Computer Launches secure communication module 64
605
Client Computer Transmits Identifying Information to Server 28
606
Customer selects instruction set & transmits selection to server 28
607
Client Computer 22-1 inserts instruction set 108 in transaction
608
Encrypt Message Using Vendor's Public Key Transmitted by Server 28
610
Insert Warning
612
Send Message to Vendor
614
Valid User?
616
No
Yes
Transmit Instruction list to client 22-1
618
Transmit Selected Instruction set 108 to client 22-1
620
Transmit Vendor's public key to client 22-1
622
Send Appropriate Message to client-1
624

FIGURE 6(a)

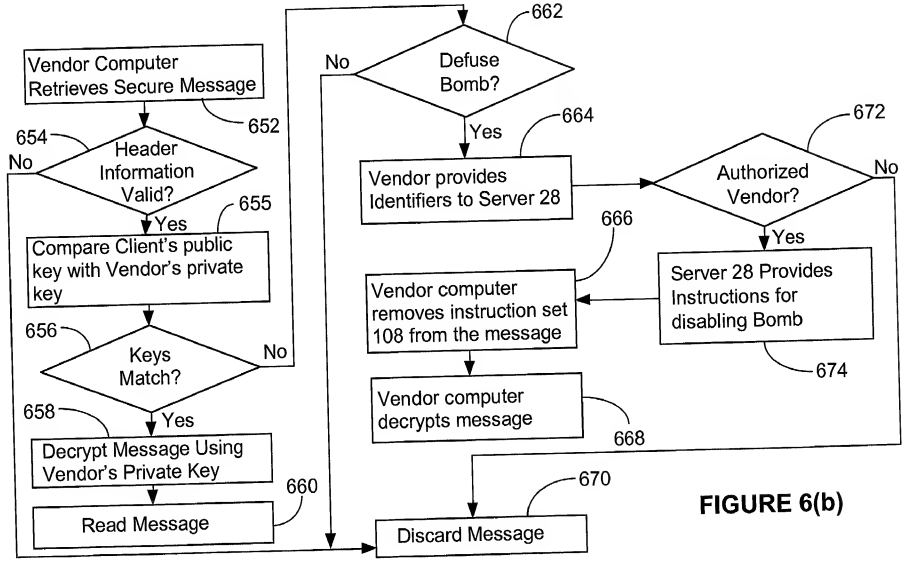
eCommerce Entity
Server 28
Vendor Computer Retrieves Secure Message
652
654
Header Information Valid?
No
Yes
655
Compare Client's public key with Vendor's private key
656
Keys Match?
No
Yes
658
Decrypt Message Using Vendor's Private Key
660
Read Message
662
Defuse Bomb?
No
Yes
664
Vendor provides Identifiers to Server 28
672
Authorized Vendor?
No
Yes
666
Vendor computer removes instruction set 108 from the message
Server 28 Provides Instructions for disabling Bomb
674
Vendor computer decrypts message
668
670
Discard Message

FIGURE 6(b)